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Aeronautes melanoleucus. White-throated Swift. Plentiful along the summit of the Santa Ynez range and down among the rocky cliffs of the Matilija Canyon. Numerous cliffs were seen with cavities in and out of which Swifts flew; but the adventurous spirit was not strong enough in me to attempt a nest robbery under the conditions.

Nuttallornis borealis. Olive-sided Flycatcher. Common around the Santa Ynez Mountains; one nest was seen in a fir. The birds were seen well down the slopes toward the sea.

Ardea herodias herodias. Great Blue Heron. A lone Blue Heron was seen a quarter of a mile from shore, out in the ocean, standing placidly on a mass of kelp!

Gymnogyps californianus. California Condor. To any ornithologist, the first sight of this wonderful bird, and the first entry of that name in one's note book, is certainly a moment of great satisfaction. I was wearily ascending the last hundred feet of Divide Peak, in the Santa Ynez Mountains, and thinking of all the reviving agents known to man, when I suddenly came on three of these great birds, sitting stolidly upon a great boulder upon the very top of the mountain. It seemed, then, that without any other motion than a lazy stretching of their wings, and the posing anew of the whole body, that they could change from a bird to a speck, and then vanish. No bird can equal that exhibition of aviation. (That is a late word, but applies here very well.)

The same Condors, no doubt, were the ones which different members of our party saw almost daily around the same spot. Eight were seen in all, the other five occurring as follows: One on Red Mountain; three near Sulfur Mountain, and one near Matilija. The three birds of Divide Peak seemed always to stay together. From all the accounts of the natives of the mountains, the Condor is a rather common bird, and its presence is to be expected in all the spurs of the main mountains of Ventura County. It is reported as numerous in the vicinity of Devil's Gorge on the Sespe.

One day I witness a competitive flight between a Condor and a Turkey Buzzard. What a world of difference between the respective grace and speed of the two birds! And the Turkey Buzzard is a first class performer on the wing, at that.

A DEFENSE OF OOLOGY

By MILTON S. RAY

WITH ONE PHOTO BY OLUF J. HEINEMANN

BEFORE giving my views to the readers of THE CONDOR I wish to state I consider oology an inseparable part of ornithology, but, as it has been separated by some and completely divorced by others, I am forced to use the term.

The first point I wish to take up is: Is oology scientific or popular ornithology?

In the opinion of some, perhaps many, the structure and classification of birds is considered the more scientific; in fact a division has been made, terming this "scientific ornithology" and relegating the study of eggs, young, nests and all else to another division termed "popular ornithology." It would seem to me that inasmuch as the eggs are produced by the bird's anatomy and hold new life, they are

in a sense a part of the bird's anatomy, and that, if any such separate classification is to be made that birds and eggs should come together rather than eggs and nests. As further proof I feel quite sure if some bird, a thrush for instance, of one section produced *invariably* plain bluish-white eggs and that of another section produced *invariably* entirely different eggs, say green heavily blotched with brown, I doubt not that the two birds would soon be separated even if *no* apparent difference could be found in the birds themselves. However, it is not my opinion that any such separation of the study of eggs, birds or nests is necessary, as the gathering of all *facts* in the study of them in my idea, is scientific and is ornithology. Nature has drawn no clear cut lines that I can see, and I consider it as *important* to note that the Cliff Swallow constructs its nest of mud as that a hundred specimens of the bird show some slight variation in wing measurement.

A prominent ornithologist some time ago informed me that he did not consider the geographical variation of species as important as most have deemed it, and that all Song Sparrows in his collection were simply labeled such, accompanied with the usual data. Personally I do not endorse this method, believing all differences discernible should be recognized. I also believe variation in eggs, or any other scientific fact concerning them, important as well, for to me all appear to be but links in a great chain. It seems to be the desire of some, however, to disconnect these "links", claiming that the so-called scientific ornithology is the more important, as it is a component part of the science of life. To me it would seem that equally as much of the science of *life* can be learned by a close study of the birds' habits, their eggs and nests, as by the study of their structure and their classification.

The second point is: Have eggs been scientifically studied or described?

I maintain that truly scientific descriptions of eggs, treating of their texture, size, shape and coloration is a part of ornithology that has been neglected and offers material for a monumental work. Take the eggs of the Brewer Blackbird (*Euphagus cyanocephalus*) for instance. I wish to ask any collector familiar with a series, if there are not many specimens that one unfamiliar with the species would have difficulty in identifying if he depended solely on the written descriptions of a writer like Davie for instance, who states that the eggs are marked "with dark brown * * * and some with a lighter shade." Could anything be more indefinite? Why, this season, which I spent at Lake Tahoe, I examined perhaps as many as a hundred nests of this bird, mostly with eggs, and I can say instead of Davie's two shades of brown, there are nearer twenty! In fact with the exception of the California Murre (*Uria troile californica*) I know of no Californian eggs subject to wider variation in color. The markings run thru various shades of brown, from light grayish, yellowish and reddish, to a blackish-brown that is almost if not quite black. On some the light purplish-gray markings, which are usually sparse and obscure, predominate and form another type. I noted several sets unmarked except for scrawls and blotches of blackish-brown and purplish-gray around the larger end; being not greatly unlike some specimens of the Redwing Blackbird I have seen. Others again were uniform chocolate-brown with sometimes a blackish scrawl or so on them. The ground color, almost white in some, was usually greenish-white, tho sometimes a pure light green. In shape they varied from almost globular to elongate-ovate.

In further connection with egg variation might it not be possible that closer study will reveal that food, environment, and other conditions affect eggs and their coloration? Perhaps somewhat more worthy of notice, because more unusual, are the occasional distinct types among the eggs of common birds, as, for instance the spotted eggs of the Lazuli Bunting (*Passerina amoena*), of which, I have taken

but a single set, or the very remarkable "purplish eggs" of the California Jay (*Aphelocoma californica californica*) which are so entirely different from the usual brown-spotted green specimens. I happen to have found but two sets of this type. Mr. H. A. Snow of Newark also terms them rare, while Mr. H. W. Carriger states he has found them commonly in the vicinity of Sonoma. In 1894 I collected a set of eggs of the Black-headed Grosbeak (*Zamelodia melanocephala*) of a type I have never seen since, having an almost white ground color lightly spotted with bright rusty-brown. In 1890 I took an egg of the California Towhee (*Pipilo crissalis crissalis*) which for glossiness I have never seen equaled among eggs of this species. In fact the texture and thickness of egg shells should also be looked into more carefully; for it seems that altho the food of birds is widely different, yet each species is enabled to secrete sufficient material for a protective covering for



Fig. 11. TWENTY EGGS OF THE BREWER BLACKBIRD, SELECTED FROM NINE SETS TO SHOW VARIATION IN COLOR AND SHAPE; SOMEWHAT REDUCED IN SIZE

the embryo. Whether this lime-shell material is in some cases derived solely from food, or from water alone is an interesting question. In some sections, as the higher Sierras, the water being snow-water is almost *pure*. Analysis of the foods of birds would perhaps show what percentage of lime could be obtained from them. From my own observation I would say that the thickness of egg-shells seems solely due to the intention of Nature, for I have failed to discern any difference in eggs of the same bird from different localities; while on the other hand, as in the case of the Cliff and Rough-winged Swallows, we have both hard and soft-shelled eggs in birds of the same family—breeding in the same locality and living on the same or very similar diet. I am not aware whether it is a common characteristic of them or not, but the eggs of the Rock Wren (*Salpinctes obsoletus*) which I took on the

Farallone Islands in 1904, were the thickest shelled eggs of their size I have ever collected; as likewise, among larger eggs, are those of the domesticated Guinea Fowl.

Runt and double-yolkt eggs are also deserving of notice. In all I have ever read, tho, of the taking of runt eggs, the writer always failed to state whether or not he observed any *trace* of incubation in them. This I consider an important point and worthy of investigation. Of double-yolkt eggs I can only personally record a single instance, that of a Western Tree Swallow (*Tachycineta bicolor*). The egg, which I found at Rowlands, on Lake Tahoe (June 18, 1903), was all the nest held and was elliptical oval in shape, measuring .84X.54. It held two perfectly formed embryos *equal* in size.

The indelibleness of egg-markings in some species and the lack of it in others, as the Bicolored Blackbird, Bullock Oriole and others, without going into detail, is also an important part of bird study. Should it receive more attention it may be found perhaps that all pigment has equal indelible qualities, and that the difference lies in the lack of a porous quality in shell texture. Most collectors have noticed the tendency of the ground color to fade in certain eggs. Some, that seem impervious to water, fade to a certain extent after being kept in a closed cabinet. I am not speaking of open cabinets, for these it seems will in time bleach almost any specimen. The late Walter E. Bryant once told me of some eggs formerly kept in the Woodward's Gardens Museum which after being displayed for years in a bright light faded to almost white.

We need, I think, more Sherlock Holmesism in the study of birds and eggs. Too many collectors of the latter pay too little attention to dependent conditions and too much to the thumbing of some egg-dealer's price-list. The publishing of these, should be prohibited, stimulating, as they do, egg-commercialism at the expense of true science. These lists, even as a table showing comparative rarity, are valueless.

My third point is: Why is the study of eggs given such a prominent place in bird magazines and yet so neglected in our scientific institutions? (Of the latter I can only speak of those on the coast.) I remember that the California Academy of Sciences, before the fire, had, in connection with the magnificent collection of mounted birds and bird-skins, but one lonely little case of eggs containing not more perhaps than would be taken by the average collector in a season; and at the present time, in a prominent museum across the bay, I have been informed that eggs are deemed of little importance: in other words are considered a mere "side-show" to the collection of birds. To me, the fact that two classes of people, the small boy and the commercial collector, have brought odium on egg-collecting, can in no way detract from its importance; and neither does the fact that eggs are more or less dependent on the birds, inasmuch as often the identity of the parents must be determined before that of the eggs can be established. I believe it time to sound a note of warning, for sometime in the future, eggs will be given their proper place in bird study and the coast Museums should have adequate space reserved for their accommodation. In fact, I think a California Museum equipt with proper cabinets would soon accumulate quite an extensive collection thru the donations of club members and others, and some day, should the interest that has been taken in geographical variation extend to eggs, we will not have to send east of the Rockies to borrow specimens; for it is a well known fact that the finest collections of Californian eggs are not where they should be, here in California.